

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference FP03076	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/KR 2003/002717	International filing date (day/month/year) 11 December 2003 (11.12.2003)	(Earliest) Priority Date (day/month/year) 12 December 2002 (12.12.2002)
Applicant LG ELECTRONICS INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

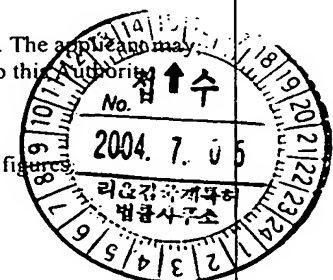
5. With regard to the abstract,

- ☐ the text is approved as submitted by the applicant.
- ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.: 2A

- ☐ as suggested by the applicant.
- ☐ because the applicant failed to suggest a figure.
- ☒ because this figure better characterizes the invention.

☐ None of the figures



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 03/02717-0

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The present invention discloses a rotor for a line-start reluctance motor which improves core area efficiency to make flux flow in one direction. The rotor for the line-start reluctance motor includes a core (21) having an axis coupling hole (22) in a coupling direction of the shaft, a plurality of electrically conductive bars (24) formed in the periphery of the core (21), and a plurality of nonconducting flux barriers (25). One and the other ends of the flux barriers (25) approach the bars (24) formed in a first and a second area facing each other at a predetermined angle in relation to a central line of an axis (q) on a core plane vertical to the coupling direction. At least parts of the centers of the nonconducting flux barriers (25) pass through a third or a fourth area between the first and second areas, surrounding the axis coupling hole (22) at predetermined intervals (a,b,c see figure 1C).

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 03/02717-0

CLASSIFICATION OF SUBJECT MATTER

IPC⁷: H02K 19/14, H02K 17/26, H02K 19/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: H02K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

EPODOC, DEPATIS, PAJ, WPI

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1206112 A (NATIONAL RESEARCH DEVELOPMENT) 23 September 1970 (23.09.1970) <i>page 1, lines 10-23, 29-47; page 1, line 80 - page 2, line 62; page 2, line 108 - page 3, line 15; claims 1,2; figure 4.</i>	1,3,4,9-12,15-17,25-27,33-35
Y	<i>page 1, lines 10-23, 29-47; page 1, line 80 - page 2, line 62; page 2, line 108 - page 3, line 15.</i>	19, 23
A	<i>figures 7,8.</i>	2
Y	JP 63 217957 A (HITACHI) 12 September 1988 (12.09.1988) <i>abstract; "japanese" in Database JPO on Internet: figures 1,2.</i>	19, 23
X	JP 2000 197325 A (MATSUSHITA ELECTRIC) 14 July 2000 (14.07.2000) <i>"detailed" in Database JPO on Internet : [0007], [0009], [0011], [0017], [0031], [0034] and [0035]; claims 1,5.</i>	1,3,4,9-12,14-17
A	<i>"detailed" in Database JPO on Internet: [0007], [0009], [0011], [0017], [0031], [0034] and [0035]; claims 1,5; figures 1-9.</i>	2,18-19,23,25,26,29-31,33,34,37-39,41,45,46

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

„A“ document defining the general state of the art which is not considered to be of particular relevance

„E“ earlier application or patent but published on or after the international filing date

„L“ document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

„O“ document referring to an oral disclosure, use, exhibition or other means

„P“ document published prior to the international filing date but later than the priority date claimed

„T“ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

„X“ document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

„Y“ document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

„&“ document member of the same patent family

Date of the actual completion of the international search

29 March 2004 (29.03.2004)

Date of mailing of the international search report

23 June 2004 (23.06.2004)

Name and mailing address of the ISA/AT

Austrian Patent Office
Dresdner Straße 87, A-1200 Vienna

Facsimile No. 1/53424/535

Authorized officer

HAWEL R.

Telephone No. 1/53424/315

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR 03/02717-0

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 11 146615 A (MATSUSHITA ELECTRIC) 28 May 1999 (28.05.1999) <i>"detailed" in Database JPO on Internet: [0024], [0027] and [0031]; figures 1-7.</i>	1,3,4,9-12,14-17
A	<i>"detailed" in Database JPO on Internet: [0024], [0027] and [0031]; figures 1-7.</i>	2,18-19,23,25,26,29-31,33,34,37-39,41,45,46
X	US 3721844 A (FONG) 20 March 1973 (20.03.1973) <i>column 1, lines 36-55; column 2, lines 13-21; column 3, lines 21-26; claims 1,7; figures 5-10.</i>	1,3,4,9-11,15-17
A	GB 449202 A (THE CROYDON ENGINEERING) 23 June 1936 (23.06.1936) <i>page 1, lines 12-60; page 2, lines 65-77, 96-106; claims 1-3.</i>	1,17,23,24

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 03/02717-0

In addition to the search report those necessary corrections and additions are called, which were presupposed for the production of this search report :

The item "a coupling direction of a shaft" was interpreted as "the direction of the rotor axis" used in the claims 1, 25, 34, 41.

Since the back relationship of claims 28, 36 and 44 gives no definite definition of the item "area of the bars" the definition of the item " area of the bars" is missing in the claims 28, 36 and 44. - Regarding the whole information of the present application for the execution of the search report the item "area of the bars" was extended to the item "area of the bars defined according claim 1" in the claims 28, 36 and 44.

The term "length" is described in the AMERICAN HERITAGE Dictionary of the English Language and in the CAMBRIDGE International Dictionary of English as distance. Therefore, the term "length" needs a definite direction of reference. - Therefore, for the execution of the search report in the claims 31, 41 the term "length of the bars" was replaced by the item "length of the bars in the direction of the corresponding radius of the rotor core".

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR 03/02717-0

Patent document cited in search report			Publication date	Patent family member(s)			Publication date
GB	A	1206112	1970-09-23	DE	A	1638499	1970-09-10
				CH	A	479188	1969-09-30
GB	A	449202	1936-06-23	none			
JP	A	11146615		none			
		A2					
JP	A	20001973		none			
		25A2					
JP	A	63217957		none			
		A2					
US	A	3721844	1973-03-20	none			